

CROSSROADS

THE OFFICIAL NEWSLETTER OF THE PREMED SCENE



Rising Stars in Medicine: Dr. Kunal Sood

Dear medical newsletter readers,

Happy July! Today, we bring to you the most recent news in medical research! Mahima Bhat is your next Rising Stars in Medicine writer, talking about Dr. Kunal Sood and their work in Anesthesiology and Interventional Pain Medicine. Then, Siri Nikku focuses on differences in bone differentiation. Next, Ilana Saidov spreads greater awareness regarding how the newest technology can be utilized in recovering from stroke. Finally, Mahima ends by sharing more about the dermatologic effects of retinol.

Please enjoy reading The Premed Scene's July 2023 Medical Newsletter! Till next month.

Aprile Bertomo

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Rising Stars in Medicine: Dr. Kunal Sood

BY MAHIMA BHAT

As a resident at a chronic pain clinic, Dr. Sood began developing relationships with the patients, leading him to understand how chronic pain can affect an individual's quality of life. Ultimately, giving patients back their quality of life drove him to specialize in interventional pain medicine, and he is now working as Medical Director at National Spine and Pain Centres in Germantown, Maryland.

In the life of a pain doctor, Dr. Sood starts early at around 6 AM, setting up medications and supplies for surgical cases. He then attends to patients, reviewing medical history and designing anaesthetic plans. Typically, he works until 5 PM, occasionally taking 24-hour calls.

Dr. Sood graduated from the American University of Antigua in 2013. He completed a medical internship at Wayne State University GME/Detroit Medical Center and later finished his residency at Wayne State University School of Medicine, specializing in Anesthesiology and Pain Medicine. Additionally, he has recently been awarded the Maryland Top Doctor 2023 award and serves as a Diplomate for the American Board of Anesthesiology.

Throughout the pandemic, Dr. Sood utilized multiple social media platforms to raise awareness and educate the public about his role as a neurosurgeon in the medical profession. Currently, Dr. Sood focuses on assisting patients in managing chronic pain, specializing in anesthesiology and interventional pain medicine.

Source: <https://www.treatingpain.com/find-a-doctor/kunal-sood-md/>

Malignant vs. Benign Bone Tumor Differentiation

BY SIRI NIKKU

Bone cancer can be defined as a cancer that occurs in the bones or when cells are multiplying uncontrollably in bones. Compared to other cancers, bone cancer is a bit more rare. Bone cancer occurs in cartilage and bone tissue. Bone tumors can be separated into either benign or malignant. When detected early, bone tumors, there is a much higher chance of patients with bone tumors surviving as well the damage of bone amputations decreasing. While a lot of bone tumors are classified as benign, they can still weaken bones and cause other bone related problems like osteoblastoma (a tumor that occurs in the spine and long bones), osteochondroma (common for those in their 20's), giant cell tumor (occurring in the leg and sometimes being cancerous), enchondroma (one of the most common hand tumors), and osteoid osteoma (happening in long bones in patients' 20's). There is primary and secondary bone cancer. Primary bone cancer is a cancerous tumor that starts in the bone. There is no single cause but some evidence suggests that genes may play a part. Secondary bone cancer is cancer in the bones that has started in a different location and spread. Common cancers that spread to bone include breast cancer, prostate cancer, and lung cancer. Some symptoms of bone cancer include fevers, night sweats, swelling around a bone, limping, tiredness, and weight loss. Bone cancer screening for determining if one has bone cancer occurs through CT scans, X-rays, MRI scans, PET scans, and bone scans. Bone cancer treatment can involve amputation, limb salvage surgery, radiation therapy, chemotherapy, and targeted therapy.



In a recent study, micro RNA (miRNA) was looked at; the top 25% serum miRNAs with the largest variance in patients with malignant and benign bone tumor and healthy individuals was screened to see if the serum miRNAs could distinguish between malignant and benign tumors. 19 miRNA biomarkers were also screened to determine if they could determine the difference between malignant and benign bone tumors. The results indicated that 11 of the 19 miRNA biomarkers could differentiate between whether a bone tumor is malignant or benign.

Sources:

<https://link.springer.com/article/10.1007/s10528-022-10259-8>

<https://www.webmd.com/cancer/bone-tumors>

The Benefits of Robotics in Stroke Recovery

BY ILANA SAIDOV

Strokes affect over 800,000 individuals in the United States annually and are one of the leading causes of long-term disability. A stroke occurs when the blood supply to the brain is interrupted. This interruption prevents brain tissue from accessing necessary oxygen and nutrients, resulting in the death of brain cells within minutes. In general, strokes can be caused by a blocked artery (ischemic stroke) or a leaking blood vessel (hemorrhagic stroke). Regardless of the specific type of stroke, survivors of these incidents need to relearn fundamental skills such as walking, talking, and completing daily tasks. In order to regain motor and language functions, stroke survivors undergo physical therapy, occupational therapy, as well as additional rehabilitation services.

Recent advancements in robotics technology have shown promising results for stroke patients. The Robo-glove is an example of robotics technology that aims to improve the coordination and rehabilitation of individuals in stroke recovery. The Robo-glove is an exoskeleton glove with tactile sensory, soft actuators, and artificial intelligence. Additionally, the wrist area is soft and flexible, allowing for a custom fit for each person. These combined features help individuals relearn the tasks that are a part of their daily functions.



The robotic glove's ultimate purpose is to enhance stroke survivors' quality of life. The glove allows the patient complete control over the movement of each finger. Additionally, the soft pneumatic actuators in each fingertip generate motion and exert force, flex and extend, and help each hand regain dexterity. Each feature in the robotic glove allows the hands to recover motor skills and improve coordination.

Although this type of automated technology is relatively new, ongoing research and development are likely to lead to even more promising outcomes in the future.

Sources:

<https://www.jpost.com/health-and-wellness/article-748833>

<https://www.mayoclinic.org/diseases-conditions/stroke/symptoms-causes/syc-20350113>

Affects of Retinol on your Skin

BY MAHIMA BHAT

Retinol, a derivative of vitamin A, is incorporated into skincare products like creams, lotions, and serums, offering anti-aging benefits and the potential to alleviate acne. Retinol stimulates skin cell proliferation, promoting unclogging of pores and exfoliation. Additionally, it boosts collagen production, reducing the visibility of fine lines and wrinkles, resulting in a rejuvenated and plumper complexion.

What does retinol treat? It can treat acne, acne scars, dark spots, wrinkles, stretch marks, and even Kaposi sarcoma lesions, flat or bumpy dark-colored patches or blotches. Although retinol is a powerful tool against aging skin and acne, but it may not be for everyone. If you're prone to allergies or have sensitive skin, you might want to try skincare products with alternative anti-aging or skin-clearing ingredients.

Importantly, retinol makes your skin more sensitive to sunlight so be sure to use sunscreen and avoid the sun as much as you can while you use retinol products. After a patch test, you might use a product once every few days, and then gradually ramp up to once or twice per day. At first, you might experience redness, itching or burning, but these symptoms go away as your skin gets used to the treatment.

What are side-effects of retinol? Side-effects are usually temporary, and may include any combination of the following: dry and red skin, itching and burning, increased sensitivity to sunlight, and flaky skin. Making small adjustments to your skincare routine may help reduce the redness and irritation that can come with using retinol. Some adjustments include: using SPF 30 and wearing sun protective clothing and hats to reduce your exposure to the sun, using retinol every other day rather than every day (wait 30 minutes after washing your face before applying), and avoiding retinol products if you have a sunburn, broken skin, or other skin irritations.

You should consider seeing your doctor if you experience severe reactions or if are pregnant and/or breastfeeding.



Sources: <https://my.clevelandclinic.org/health/treatments/23293-retinol#:~:text=Retinol%20slows%20the%20breakdown%20of,of%20a%20couple%20of%20weeks.>